

UTILITY PATENT APPLICATION TRANSMITTAL

(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.

BS00-118

Total Pages in this Submission

42

TO THE ASSISTANT COMMISSIONER FOR PATENTS

Box Patent Application

Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

SYSTEM AND METHOD FOR INTEGRATED PROCESSING OF INFORMATION FROM A PLURALITY OF DATA SYSTEMS

and invented by:

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If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

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Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 28 pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☐ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Microfiche Appendix (if applicable)
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if drawings filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

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Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*

a. ☐ Formal Number of Sheets _____

b. ☒ Informal Number of Sheets 4

4. ☒ Oath or Declaration

a. ☐ Newly executed *(original or copy)* ☒ Unexecuted

b. ☐ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*

c. ☐ With Power of Attorney ☐ Without Power of Attorney

d. ☐ DELETION OF INVENTOR(S)

Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).

5. ☐ Incorporation By Reference *(usable if Box 4b is checked)*

The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.

6. ☐ Computer Program in Microfiche *(Appendix)*

7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*

a. ☐ Paper Copy

b. ☐ Computer Readable Copy *(identical to computer copy)*

c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & document(s))*

9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*

10. ☐ English Translation Document *(if applicable)*

11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations

12. ☐ Preliminary Amendment

13. ☐ Acknowledgment postcard

14. ☐ Certificate of Mailing

☐ First Class ☐ Express Mail *(Specify Label No.):* _____

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Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)

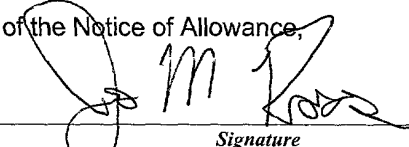
16. ☐ Additional Enclosures (please identify below):

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	33	- 20 =	13	x \$18.00	\$234.00
Indep. Claims	5	- 3 =	2	x \$78.00	\$156.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$690.00
OTHER FEE (specify purpose) _____					\$0.00
TOTAL FILING FEE					\$1,080.00

- ☐ A check in the amount of _____ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. **50-1390** as described below. A duplicate copy of this sheet is enclosed.
- ☒ Charge the amount of **\$1,080.00** as filing fee.
 - ☒ Credit any overpayment.
 - ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
 - ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).



Signature

Dated: November 16, 2000

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APPLICATION FOR UNITED STATES LETTERS PATENT

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**SYSTEM AND METHOD FOR INTEGRATED PROCESSING OF INFORMATION
FROM A PLURALITY OF DATA SYSTEMS**

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SYSTEM AND METHOD FOR INTEGRATED PROCESSING OF INFORMATION FROM A PLURALITY OF DATA SYSTEMS

5 **FIELD OF THE INVENTION**

The present invention relates to information management systems. More particularly, the present invention relates to systems and methods for integrated processing of information from a plurality of data systems.

10 **BACKGROUND OF THE INVENTION**

A business, such as a retail store, can be connected to a plurality of network systems for access to customer and business information. For example, a business may be connected to a Point-of-Sale (POS) system that provides accounting (e.g., general ledger accounting) and cash management services. The accounting services can track costs related to inventory, sales revenues, and other accounting figures. The cash management services can manage cash flows, bank deposits, cash drawer reconciliation, and so on. Access to the POS system may be controlled by requiring the entry of login information (e.g., a user identification, a password). Management of the business's inventory may be performed by an inventory system that is separate from the POS system. The inventory system can perform inventory management functions such as inventory ordering, inventory receiving, sales from inventory, returns to inventory, and inventory reordering. Access to the inventory system can also require entry of the appropriate login information, but the login information for access to the inventory system can be different than the login information for access to the POS system.

The business may also accept credit cards for payments of the costs of goods and services. Also, the business may be offering business services such that conducting a credit determination (e.g., a consumer credit evaluation) prior to entering into a service agreement is advantageous. A credit card services system can provide credit card services (e.g., provide credit card authorizations, guarantees of payment, and so forth) to the business. The business may also receive credit information from a credit system prior to making a credit determination. To manage customer accounts, the business may have a customer services system that includes data related to customer accounts, balances, and other customer information. The provision of services (e.g., wireless communications services, Internet access services, communications services, data services) can require activation systems that manage activation of customer accounts. For example, a business providing wireless communications services can have an activation system that manages establishment of billing for wireless service and provisioning of wireless services to a wireless communications device. Access to each of these service systems – e.g., the credit service systems, the customer service system, and the activation system – may be discrete, and each service system can require different login information for access and use of each system.

The use of each of these service systems can individually enhance business productivity, employee productivity and customer satisfaction with respect to each specific service. However, when an employee or customer transaction requires interaction with a plurality of the service systems, there can be errors and inefficiencies. For example, a customer transaction may require establishment of separate transaction sessions with

different service systems that can involve entry of distinct login information, rekeying of customer information, rekeying of product and/or service information, and so on.

Inefficiencies can also arise from a service system requirement that there be an operating network communications link between a client terminal (e.g., a POS terminal, a personal computer (PC) at retail establishment) and a server (e.g., a network server, a server of a network data center). The network communications link can provide real-time data communications between the client terminal and the server, and can be a Wide Area Network (WAN) communications link, a Local Area Network (LAN) communications link, an HTTP network communications link (e.g., an Internet communications link), and so forth. Whereas many client terminals are able to operate in an off-line mode (e.g., without an operating network communications link), certain transactions typically require an operating network communications link. For example, credit card service systems typically require a network communications link in order for credit authorization queries and replies. An activation system for provisioning of wireless services can be dependent upon a credit determination that requires receipt at a client terminal of credit information from a credit services system.

In view of the foregoing, it can be appreciated that a substantial need exists for systems and methods that can advantageously provide for integrated processing of information from a plurality of data systems .

SUMMARY OF THE INVENTION

The present invention is a system that integrates processing of information from a plurality of data systems. For example, a user may require access to a plurality of data

systems including a credit services system, an inventory services system, a customer account services system, and an activations system. Each of such data systems may have unique login information particular to each user and data system. In a preferred embodiment of the present invention, an application server can integrate processing of information from each of such data systems to increase user efficiency and access with respect to the data systems.

In the preferred embodiment, the system includes a network connection, which can receive information sent to and from a terminal. The terminal can be, for example, a POS terminal at a retail location. The network connection can be coupled to a Wide Area Network (WAN), and the WAN can be coupled to the terminal. The system can also include a plurality of data system connections, where each data system connection of the plurality of data system connections can receive information sent to and from a respective data system of a plurality of data systems. The data systems of the plurality of data systems can be selected from the group including a credit services system, an inventory services system, a customer account system, and an activations services system. A server can be coupled to the network connection and the plurality of data system connections.

In an embodiment, the server includes a processor and a memory coupled to the processor. The memory can include a plurality of data system instructions objects, where each data system instructions object of the plurality of data system instructions objects corresponds to a respective data system of the plurality of data systems. The data system objects can be object-oriented software modules, Java beans, and so forth. Each data system instructions object can manage communications between the terminal and the respective data system of the plurality of data systems.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic diagram of a preferred embodiment of the present invention.

FIG. 2 is a schematic diagram showing a client perspective of a preferred
5 embodiment of the present invention.

FIG. 3 is a schematic diagram showing a server perspective of a preferred
embodiment of the present invention.

FIG. 4 is a schematic diagram illustrating an embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

According to the preferred embodiment of the present invention, a system
integrates processing of information from a plurality of data systems. In the preferred
embodiment, the system includes a network connection, which can receive information
sent to and from a terminal. The network connection can be coupled to a first network, and
15 the first network can be coupled to the terminal. The system can also include a plurality of
data system connections, where each data system connection of the plurality of data system
connections can receive information sent to and from a respective data system of a
plurality of data systems. A server can be coupled to the network connection and the
plurality of data system connections. In an embodiment, the server includes a processor
20 and a memory coupled to the processor. The memory can include a plurality of data
system instructions objects, where each data system instructions object of the plurality of
data system instructions objects corresponds to a respective data system of the plurality of

data systems. Each data system instructions object can manage communications between the terminal and the respective data system of the plurality of data systems.

FIG. 1 is a schematic diagram of the preferred embodiment of the present invention. A Point-of-Sale (POS) terminal 10 is coupled to server 100, and server 100 is coupled to a plurality of data systems including credit services system 140, inventory services system 150, customer account services system 160, and activations services system 170. Embodiments of the present invention can provide integrated processing of information from a plurality of data systems. For example, server 100 can provide a user interface (e.g., a graphical interface, a web-enabled interface) to a user at POS terminal 10 that integrates interaction with the plurality of data services.

In the preferred embodiment, server 100 includes a processor 111 and a memory 120. Processor 111 can be, for example, an Intel Pentium® III processor, manufactured by Intel Corp. of Santa Clara, California. As another example, processor 111 can be an Application Specific Integrated Circuit (ASIC). Server 100 can be, for example, a UNIX server from Sun Microsystems, Inc. of Palo Alto, California. Memory 120 may be a random access memory (RAM), a dynamic RAM (DRAM), a static RAM (SRAM), a volatile memory, a non-volatile memory, a flash RAM, a cache memory, a hard disk drive, a magnetic storage device, an optical storage device, a magneto-optical storage device, or a combination thereof.

Server 100 also can be, for example, a plurality of coupled servers. As used to describe embodiments of the present invention, the term “coupled” encompasses a direct connection, an indirect connection, or a combination thereof. Moreover, two devices that are coupled can engage in direct communications, in indirect communications, or a

combination thereof. In an embodiment in which server 100 is a plurality of coupled servers, such as a first server coupled to a second server, the first server can be an Oracle® 8i R2 JServer and the second server can be an Oracle Application Server. Oracle Corporation is headquartered in Redwood Shores, California.

5 Memory 120 of server 100 can store a plurality of data system instructions objects. Each data system instructions object of the plurality of data system instructions objects can interface with a respective data system of a plurality of data systems coupled to server 100. For example, each data system instructions object of the plurality of data systems instructions objects can manage communications between POS terminal 10 and the
10 respective data system of the plurality of data systems. In an embodiment, the plurality of data system instruction objects include credit services instructions object 125, inventory services instructions object 126, customer account services instructions object 127, and activation services instructions object 128. For example, the plurality of data system instructions objects can be constructed using Object Oriented (OO) development methods.
15 For example, a data system instructions object can be a Java bean (e.g., a capsulation of Java code that can be run on a plurality of computer systems such as a UNIX system, a Windows® NT system, etc.).

 The credit services instructions object 125 interfaces with the credit services system 140 coupled to server 100. Credit services system 140 is coupled to server 100 via a data
20 connection (e.g., a network port, an input/output port, a port and a communications link, etc.). The credit services system 140 can be an internal system (e.g., where server 100 and credit services system 140 are operated by the same entity) or an external system (e.g., the credit services system 140 is operated by a third-party, or the credit services system 140 is

operated by a third-party that has a contractual relationship with the operator of server 100). Credit services system 140, in an embodiment, can provide credit evaluations (e.g., a credit report, a credit evaluation based at least in part on a credit report, etc.). In another embodiment, credit services system 140 is a credit card services system that can provide a credit card payment authorization, a credit card payment guarantee, and other credit services.

Inventory services instructions object 126 interfaces with the inventory services system 150 coupled to server 100. Inventory services system 150 is coupled to server 100 via a data connection and may be an internal system or an external system. Inventory services system 150, for example, can provide inventory services such as inventory ordering, receiving, tracking, relief, and so on.

Customer account services instructions object 127 interfaces with the customer account services system 160 coupled to server 100. Customer account services inventory services system 160 is coupled to server 100 via a data connection and may be an internal system or an external system. Customer account services system 160, for example, can provide customer account services such as storing customer information, maintaining billing information, printing customer contracts, and so forth.

Activation services instructions object 127 interfaces with the activations services system 170 coupled to server 100. Activations services system 170 is coupled to server 100 via a data connection and may be an internal system or an external system.

Activations services system 170, for example, can provide activations services such as managing activation of customer accounts and/or establishment of services. For example, a business providing wireless communications services can have an activation system that

manages establishment of billing for wireless services and provisioning of wireless services to a wireless communications device.

In a preferred embodiment of the present invention, each data system of the plurality of data systems 140, 150, 160, and 170 has unique user access rights. For example, a user that has access rights to each of data systems 140, 150, 160, and 170 may have a unique login and password for each data system. Each data system of data systems 140, 150, 160, and 170 includes a data system application that manages operation and/or access to the respective data system. A data system application can control a user's access to the corresponding data system (e.g., a user may have read-only access rights, a user may have read and modify access rights, a user may have limited access to data stored on the data system, etc.).

Terminal 10 sends login information of a user to server 100. In an embodiment, terminal 10 is coupled to server 100 via WAN 50 and a network connection (e.g., data port, input/output port, etc.). Terminal 10, in another embodiment, can be coupled to server 100 via WAN 50 and/or HTTP network 55. For example, HTTP network 55 can be the Internet. Server 100 can receive the login information of the user and determine whether the user has system access rights. For example, a user profile instructions object 129 can access a user profile (e.g., a database of user access rights, etc.) and determine whether the user has system access rights. In addition, the user profile instructions object 129 can determine whether the user has access rights with respect to the data systems of the plurality of data systems. In an embodiment, the user profile instructions object 129 can also determine the extent of access rights with respect to each data system of the plurality of data systems.

In accordance with a preferred embodiment of the present invention, a user at POS terminal 10 can access each of the data systems of the plurality of data systems after entering only one set of login information. Based at least in part on the user's login information, the server 100 can access the user's login information for each particular data system (e.g., by recalling such information from a user profile, a look-up table, a database, or other data structure) and grant the user access to each of the appropriate data systems of the plurality of data systems. Table 1 below illustrates a user profile storing a user's system login information and login information for a plurality of data systems.

	User Identification	User Password
System	John.Doe	Anony
Credit Services System	JD107	107JD
Inventory Services System	JDoe	Atlanta
Customer Account Service System	BSCC831	unwired1
Activations Services System	JohnDoe831	Seabrook

TABLE 1.

After the user's access rights are determined with respect to a set of data systems, the server 100 can send data system access information to POS terminal 10. For example, POS terminal 10 can display a set of data system applications, where each displayed data system application corresponds to a data system to which the user has access rights. In one embodiment, the POS terminal 10 can display icons corresponding to each such application, and the applications can be executed by POS terminal 10, by server 100, by the corresponding data system, or a combination thereof.

Server 100 is coupled to POS database 130. POS database 130 stores POS services information such as accounting information, cash management information, etc. In an embodiment, server 100 includes a configurable services instructions object 121, a security services instructions object 122, a POS services instruction object 123, and an accounting

services object 124. Each of services instructions objects 121-124 and POS database 130 can support POS operations in concert with POS terminal 10. For example, configurable services instructions object 121 can perform functions related to configuration of services. Security services instructions object 122 can perform operations related to security services. POS services instruction object 123 can perform operations related to POS services. Accounting services object 124 can perform operations related to accounting services.

In an embodiment, POS terminal 10 includes a processor 11 coupled to a hard drive 12 and a memory 20. POS terminal can execute a POS application locally (e.g., stored on hard drive 12 and/or in memory 20) or in concert with server 100 and POS database 130. Memory 20 can include a web browser 21 and an applet 22. Web browser 21 can provide a web-based functionality for applications communicated to POS terminal 10 or executed on POS terminal 10. Applet 22 can provide security functionality for screen access to POS terminal 10. POS terminal 10 can also be coupled to peripherals 5, which can perform or assist in POS operations. For example, peripherals 5 can include a bar-code scanner to assist in inventory and sale operations and a printer to print customer receipts and service agreements.

Each of the data communications links between terminal 10 and server 100, and between server 100 and each data system of the plurality of data systems, can be one of a variety of data communications links. Examples of the types of data communications links that can couple the terminal 10 and the plurality of data systems to server 100 include a dedicated WAN communications link, an HTTP communications link, a JDBC (Java DataBase Connectivity) communications link (e.g., a Java programming interface to a SQL

database), a TCP socket communications link, or a remote method invocation (RMI) data communications link.

POS terminal 10 is typically coupled to server 100 via WAN 50. In the event of a WAN outage, terminal 10 can be coupled to server 100 via HTTP network 55.

- 5 Alternatively, in the event of an outage of server 100, POS terminal 10 can operate in a stand-alone mode to provide at least partial functionality to a user. For example, hard drive 12 can store POS application off-line instructions that can provide POS application functionality when data communications with server 100 are lost.

FIG. 2 is a schematic diagram showing a client perspective of a preferred
10 embodiment of the present invention. In this embodiment, a POS terminal 200 can be coupled to a receipt printer 201, a cash drawer 202, a bar-code scanner 203, a contract printer 204, a keyboard 205, and a mouse 206. POS Terminal 200 can include a memory 210, and memory 210 can include trusted applet 215 and a Java plug-in 220. The trusted applet 215 and Java plug-in 220 can manage communications with server objects 275 (e.g.,
15 such as server objects residing on a server 100 of Figure 1). Trusted applet 215 and Java plug-in 220 in concert with a web browser can manage the display of browser window 230. Browser window 230 can display applications corresponding to server objects 275.

In an embodiment, bar-code scanner 203 can be a point-of-sale scanner for scanning UPCs (Universal Product Codes). In another embodiment, POS terminal 200 can
20 be coupled to a wireless inventory scanner that can be used for counting inventory. It can scan inventory items numbers and/or serial numbers and can be coupled to POS terminal 200 for transmission of inventory data to at least one of the server objects 275.

In an embodiment of the present invention, POS terminal 200 can operate in a stand-alone mode when data communications between POS terminal 200 and server objects 275 are lost. POS application off-line instructions (e.g., a program or program module that can perform local POS application functionality) can be stored in memory 210, in local storage (e.g., a hard disk, an optical storage device, non-volatile memory, etc.), a combination thereof. The POS application off-line instructions can store POS transaction information in persistent message queue 240 when the POS terminal 200 is operating in a stand-alone mode. When data connectivity between the POS terminal 200 and server objects 275 is restored, data stored in the persistent message queue 240 can be uploaded to the server objects 275. Inventory application off-line instructions also can be stored in memory 210, in local storage, or a combination thereof. The inventory application off-line instructions can stored inventory transaction information in persistent message queue 240 when the POS terminal 200 is operating in stand-alone mode.

POS terminal 200, in an embodiment, can execute a graphical user interface (GUI) that is separated into frames. For example, browser window 230 is separated into a Banner/Title Customer Profile frame, a Main Menu frame, and a Context Frame. A master applet can be anchored to the Banner/Title Customer Profile frame, allowing the applet to remain in the running state throughout a user session. Additional applets in the same and other frames can control the display and communicate screen level events to the master applet.

The master applet is a logical entity that may be broken into multiple physical applets to improve class loader performance or to simplify component design. The master applet controls interfacing to business logic and sequencing of screens. The master applet

can remain in state for the business logic so that loading and unloading of applets in other frames will not result in a loss of state.

GUI display functionality, in an embodiment, is separated into applets within the frame being displayed. The display applets can be responsible for generating the display frame and passing user interface events to the master applet for processing. The separation of screen level functionality from the remainder of application logic can give greater flexibility and lesser impact in an embodiment in which some functionality is migrated from applets to servlets. In an embodiment, a browser displaying browser window 230 has limited features, including no toolbar, no menu bar, no Universal Resource Locator (URL) entry field, no status bar, and is a maximized browser window.

FIG. 3 is a schematic diagram showing a server perspective of a system in accordance with an embodiment of the present invention. An application server 350 communicates with a POS terminal 310 through at least one of a plurality of the types of data requests. The plurality of types of data requests may include, for example, HTTP-based browser requests and applet requests. The HTTP-based browser requests can be communicated via HTTP data communications. The applet requests can be communicated via Java RMI data communications. The application server 350 can include, for example, naming, routing, load balancing, security, and transactional services instructions 351 and JB (Java Beans)/Java RMI instructions 352. The application server 350 can also include a POS database 353, a ringout controller 354, and external systems APIs 355. The application server 350 controls the instantiation of processes based on several factors including EJB (Enterprise Java Beans) load balancing, routing, and boundaries of EJB objects. In an embodiment, Enterprise Java Beans include software components that allow

coding of business logic without having to code standard services such as load balancing and security.

FIG. 4 is a schematic diagram illustrating an embodiment of the present invention. A server (e.g., server 100 of Figure 1) can receive login information of a user (box 410).

5 For example, a terminal can receive the login information from the user and send the login information to the server. The server can determine whether the user has system access rights based on the login information (box 420). To determine whether the user has access to data systems in communication with the server, the server can access a database of data system user access rights (box 430). In another embodiment, the server can access a data
10 table, a lookup table, or a data record. The server can determine the set of data systems to which the user has access rights based on the login information and the database of data system user access rights (box 440). Data system access rights information can be sent to a terminal by the server (box 450). The terminal can receive the data system access rights information and display a set of data system applications corresponding to the set of data
15 systems to which the user has access rights (box 460). For example, the terminal can display graphical icons corresponding to the set of data system applications, tabbed pages corresponding to the set of data system applications, etc.

In accordance with an embodiment of the present invention, instructions adapted to be executed by a processor to perform a method are stored on a computer-readable
20 medium. The computer-readable medium can be a device that stores digital information. For example, a computer-readable medium includes a CD-ROM as is known in the art for storing software. The computer-readable medium is accessed by a processor suitable for executing instructions adapted to be executed. The term “adapted to be executed” is meant

to encompass any instructions that are ready to be executed in their present form (e.g., machine code) by a processor, or require further manipulation (e.g., compilation, decryption, or provided with an access code, etc.) to be ready to be executed by a processor.

5 Systems and methods in accordance with the embodiments of the present invention disclosed herein can advantageously integrate processing of information from a plurality of data systems. In an embodiment including a POS terminal, the POS terminal can communicate with the plurality of data systems via an application server. The application server determines the access rights of a user of the POS terminal with respect to the
10 plurality of data systems based on received login information from the terminal and stored login information corresponding the plurality of data systems. The user can thereby access the plurality of data systems without establishing separate sessions with each of the data systems.

Embodiments of systems and methods for integrated processing of information
15 from a plurality of data systems have been described. In the foregoing description, for purposes of explanation, numerous specific details are set forth to provide a thorough understanding of the present invention. It will be appreciated, however, by one skilled in the art that the present invention may be practiced without these specific details. In other instances, structures and devices are shown in block diagram form. Furthermore, one
20 skilled in the art can readily appreciate that the specific sequences in which methods are presented and performed are illustrative and it is contemplated that the sequences can be varied and still remain within the spirit and scope of the present invention.

In the foregoing detailed description, systems and methods in accordance with embodiments of the present invention have been described with reference to specific exemplary embodiments. Accordingly, the present specification and figures are to be regarded as illustrative rather than restrictive.

WHAT IS CLAIMED IS:

1 1. A system for integrated processing of information from a plurality of data systems,
2 the system comprising:

3 a first network connection, the first network connection adapted to receive
4 information sent from a terminal over a first network and also adapted to receive
5 information sent to the terminal;

6 a plurality of data system connections, each data system connection of the plurality
7 of data system connections adapted to receive information sent from a respective data
8 system of a plurality of data systems and also adapted to receive information sent to a
9 respective data system of the plurality of data systems; and

10 a server coupled to the first network connection and the plurality of data system
11 connections, the server including

12 a processor, and

13 a memory coupled to the processor, the memory including a plurality of data
14 system instructions objects, wherein each data system instructions object of the
15 plurality of data system instructions objects corresponds to a respective data system
16 of the plurality of data systems, and wherein each data system instructions object
17 manages communications between the terminal and the respective data system of
18 the plurality of data systems.

1 2. The system of claim 1, wherein:
2 the plurality of data system connections include a first data system connection and
3 a second data system connection, wherein the first data system connection and the second
4 data system connection are selected from the group consisting of a credit services system
5 connection, an inventory services system connection, a customer services system
6 connection, and an activations system connection; and
7 the plurality of data system instructions objects include a first data system
8 instructions object and a second data system instructions object, wherein the first data
9 system instructions object and the second data system instructions object are selected from
10 the group consisting of a credit services instructions object, an inventory services
11 instructions object, a customer services instructions object, and an activations instructions
12 object, and wherein the first data system instructions object is different from the second
13 data system instructions object.

1 3. The system of claim 1, the system further comprising:
2 a point-of-sale (POS) database coupled to the server, and
3 the memory includes a POS services instructions object.

1 4. The system of claim 2, wherein the memory includes an accounting services
2 instructions object.

1 11. The system of claim 1, further comprising a terminal, the terminal including a
2 processor and a memory coupled to the processor, the memory including a web browser
3 and an applet, the terminal coupled to the server via a first network and the first network
4 connection.

1 12. The system of claim 11, wherein, when the terminal is unable to communicate with
2 the server via the first network and the first network connection, the terminal is coupled to
3 the server via a second network and the second network connection, and wherein the
4 second network is different from the first network.

1 13. The system of claim 11, wherein the terminal is adapted to:
2 receive login information of a user;
3 send the login information of the user to the server; and
4 receive information from the server corresponding to each of the respective data
5 systems of the plurality of data systems to which the user has access rights.

1 14. The system of claim 1, further comprising a plurality of data systems, each data
2 system of the plurality of data systems being coupled to the server via a respective data
3 system connection of the plurality of data system connections.

1 15. The system of claim 1, wherein the plurality of data systems include a first data
2 system and a second data system, the first data system and the second data system being
3 selected from a group consisting of a credit services systems, an inventory services system,
4 a customer account services system, and an activations services system.

1 16. A system for integrated processing of information from a plurality of data systems,
2 the system comprising:

3 a plurality of data systems, each data system of the plurality of data systems having
4 unique user access rights, wherein each data system of the plurality of data system is
5 associated with a respective data system application of a plurality of data system
6 applications;

7 a server coupled to the plurality of data systems, the server including a plurality of
8 data system interface instructions, wherein each data system interface instructions of the
9 plurality of data system interface instructions corresponds to a respective data system
10 application of the plurality of data system applications, the server including a data systems
11 user access database that stores user access rights to each data system of the plurality of
12 data systems;

13 a terminal coupled to the server, the terminal including system access instructions,
14 wherein the system access instructions send login information of a user to the server, the
15 terminal displays selected data systems applications, the selected data system applications
16 corresponds to a set of data system applications to which the user has access rights, and the
17 set of data system applications to which the user has access rights is determined based at
18 least in part on the login information of the user and the data systems user access database.

1 17. The system of claim 16, wherein the plurality of data systems include a credit
2 services data system, an inventory services data system, a customer account services data
3 system, and an activation services data system.

1 18. The system of claim 16, further comprising a point-of-sale (POS) database coupled
2 to the server, the server including a POS application, the terminal displaying the POS
3 application.

1 19. The system of claim 18, wherein the terminal includes
2 POS application off-line instructions to provide POS application functions when a
3 data connection between the terminal and the server is inoperable, and
4 a data storage device to store a persistent message queue, wherein the persistent
5 message queue includes POS application data generated by the POS application off-line
6 instructions when the data connection between the terminal and the server is inoperable.

1 20. The system of claim 16, wherein the plurality of data system interface instructions
2 are object-oriented software modules.

1 21. The system of claim 16, wherein the plurality of data system interface instructions
2 are Java beans.

22. A method of integrated processing of information from a plurality of data systems,
the method comprising:
receiving login information of a user;
determining that the user has system access rights based at least in part on the
received login information;
accessing a database of data systems user access rights, the database of data system
user access rights storing the access rights of a plurality of users with respect to a plurality
of data systems; and
determining the set of data systems of the plurality of data systems to which the
user has access, the determining being based at least in part on the login information and
the database of data systems user access rights.

23. The method of claim 22, further comprising sending data system access rights
information to a terminal, the data system access rights information based at least in part
on the determined set of data systems of the plurality of data systems to which the user has
access.

24. The method of claim 22, wherein the plurality of data systems includes a first data
system and a second data system, the first data system and the second data system being
selected from the group consisting of a credit services system, an inventory services
system, a customer services system, and an activation services system.

1 25. The method of claim 23, further comprising:
 2 receiving the data system access rights information; and
 3 displaying a set of data system applications, each data system application of the set
 4 of data system applications corresponding to a respective data system of the determined set
 5 of data systems of the plurality of data systems to which the user has access.

1 26. A system of integrated processing of information from a plurality of data systems,
 2 the system comprising:
 3 means for receiving login information of a user;
 4 means for determining that the user has system access rights based at least in part
 5 on the received login information;
 6 means for accessing a database of data systems user access rights, the database of
 7 data system user access rights storing the access rights of a plurality of users with respect
 8 to a plurality of data systems; and
 9 means for determining the set of data systems of the plurality of data systems to
 10 which the user has access based at least in part on the login information and the database of
 11 data systems user access rights.

1 27. The system of claim 26, further comprising means for sending data system access
 2 rights information to a terminal, the data system access rights information based at least in
 3 part on the determined set of data systems of the plurality of data systems to which the user
 4 has access.

28. The system of claim 26, wherein the plurality of data systems includes a first data system and a second data system, the first data system and the second data system being selected from the group consisting of a credit services system, an inventory services system, a customer services system, and an activation services system.

29. The system of claim 27, further comprising:
means for receiving the data system access rights information; and
means for displaying a set of data system applications, each data system application of the set of data system applications corresponding to a respective data system of the determined set of data systems of the plurality of data systems to which the user has access.

30. A computer-readable medium storing a plurality of instructions to be executed by a processor for integrated processing of information from a plurality of data systems, the plurality of instructions comprising instructions to:

receive login information of a user;

determine that the user has system access rights based at least in part on the received login information;

access a database of data systems user access rights, the database of data system user access rights storing the access rights of a plurality of users with respect to a plurality of data systems;

determine the set of data systems of the plurality of data systems to which the user has access, based at least in part on the login information and the database of data systems user access rights.

1 31. The computer-readable medium of claim 30, further comprising instructions to
2 send data system access rights information to a terminal, the data system access rights
3 information based at least in part on the determined set of data systems of the plurality of
4 data systems to which the user has access.

1 32. The computer-readable medium of claim 30, wherein the plurality of data systems
2 includes a first data system and a second data system, the first data system and the second
3 data system being selected from the group consisting of a credit services system, an
4 inventory services system, a customer account services system, and an activation services
5 system.

1 33. The computer-readable medium of claim 31, further comprising instructions to:
2 receive the data system access rights information; and
3 display a set of data system applications, each data system application of the set of
4 data system applications corresponding to a respective data system of the determined set of
5 data systems of the plurality of data systems to which the user has access.

ABSTRACT OF THE DISCLOSURE

Systems and methods to integrate processing of information from a plurality of data systems. In an embodiment, a system includes a network connection, which can receive
5 information sent to and from a terminal. The network connection is coupled to a first network, and the first network is coupled to the terminal. The system can also include a plurality of data system connections, where each data system connection of the plurality of data system connections can receive information sent to and from a respective data system of a plurality of data systems. A server is coupled to the network connection and the
10 plurality of data system connections. In an embodiment, the server includes a processor and a memory coupled to the processor. The memory can include a plurality of data system instructions objects, where each data system instructions object of the plurality of data system instructions objects corresponds to a respective data system of the plurality of data systems. Each data system instructions object can manage communications between
15 the terminal and the respective data system of the plurality of data systems.

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FIG. 1

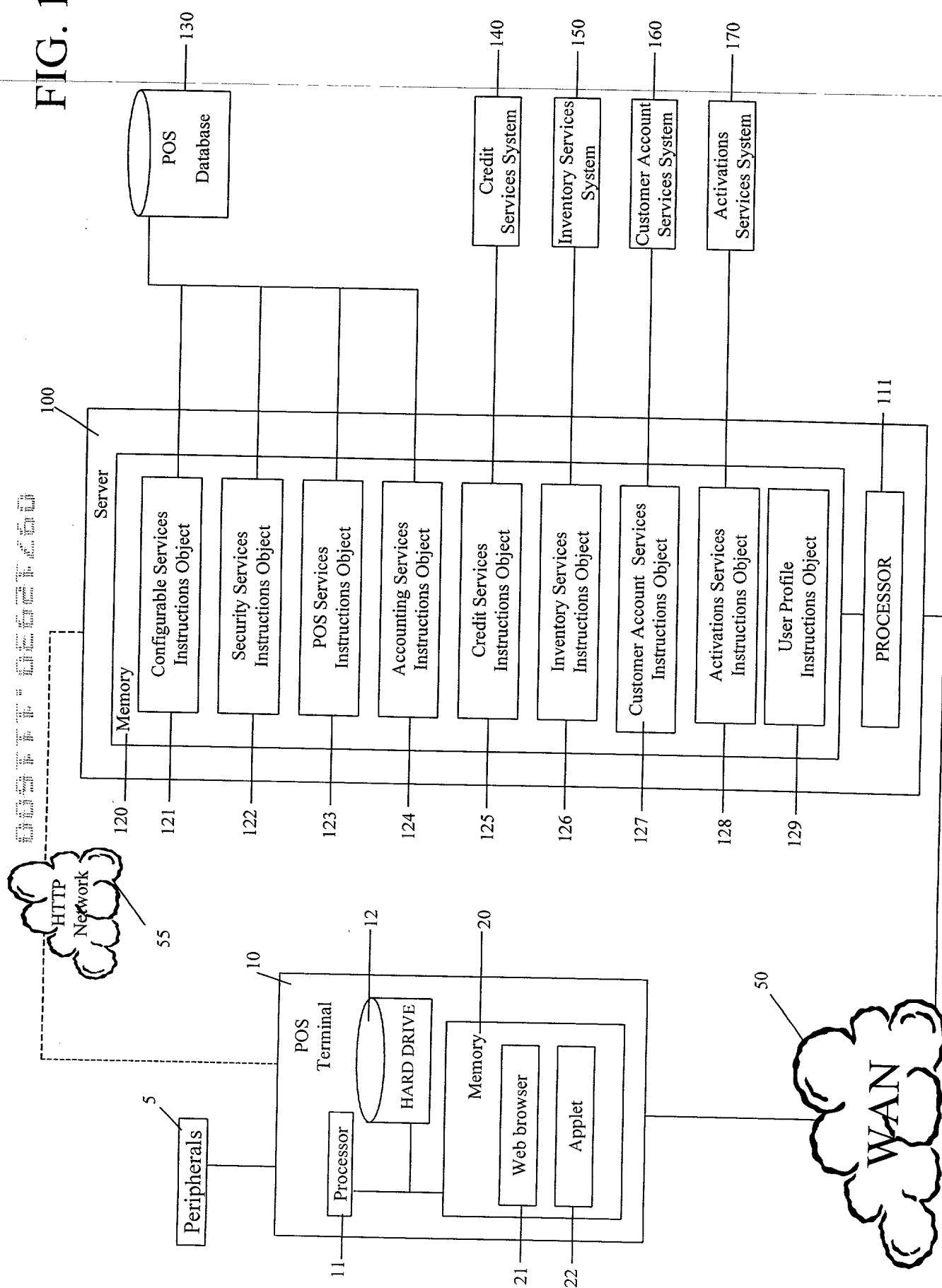


FIG. 2

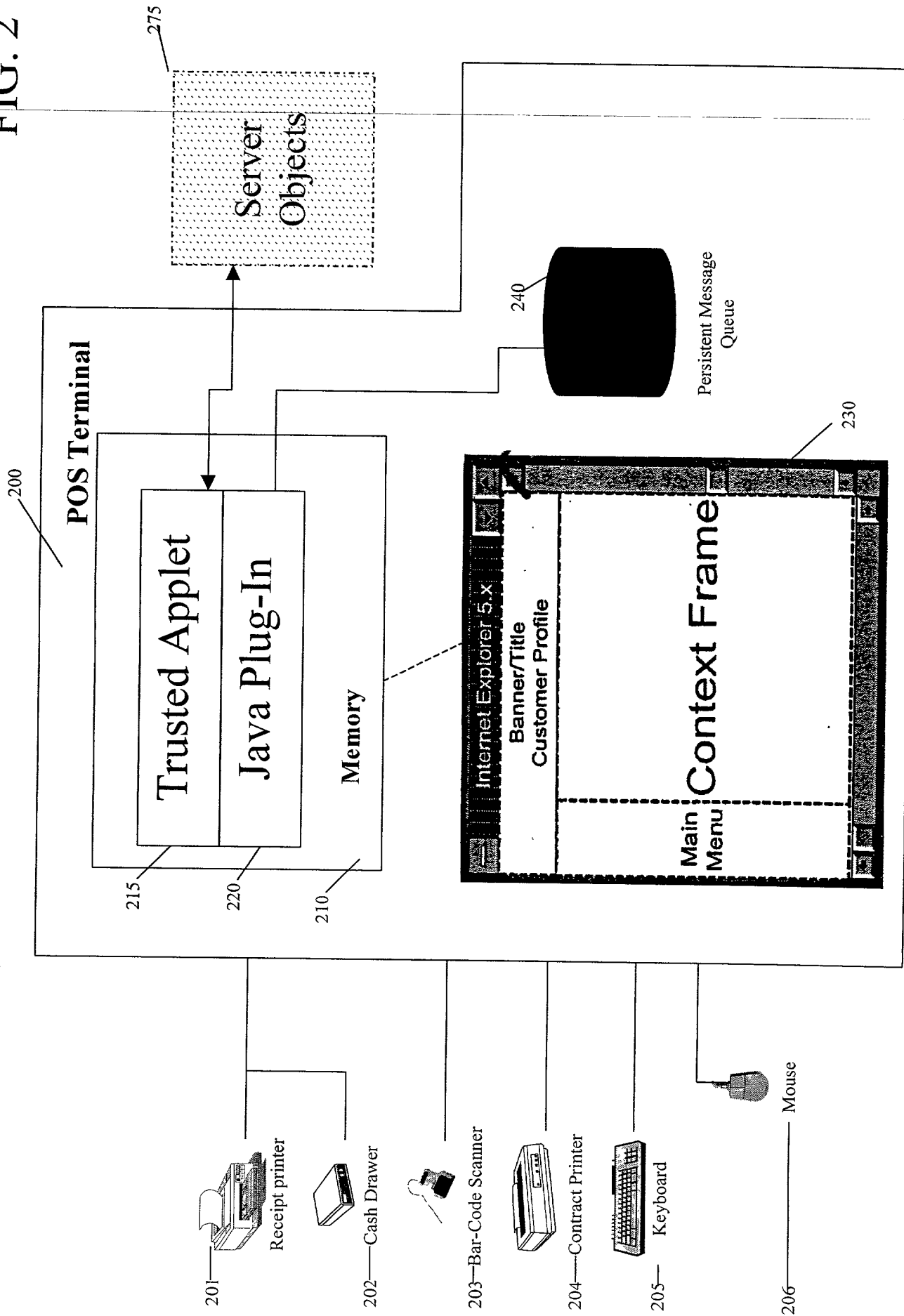
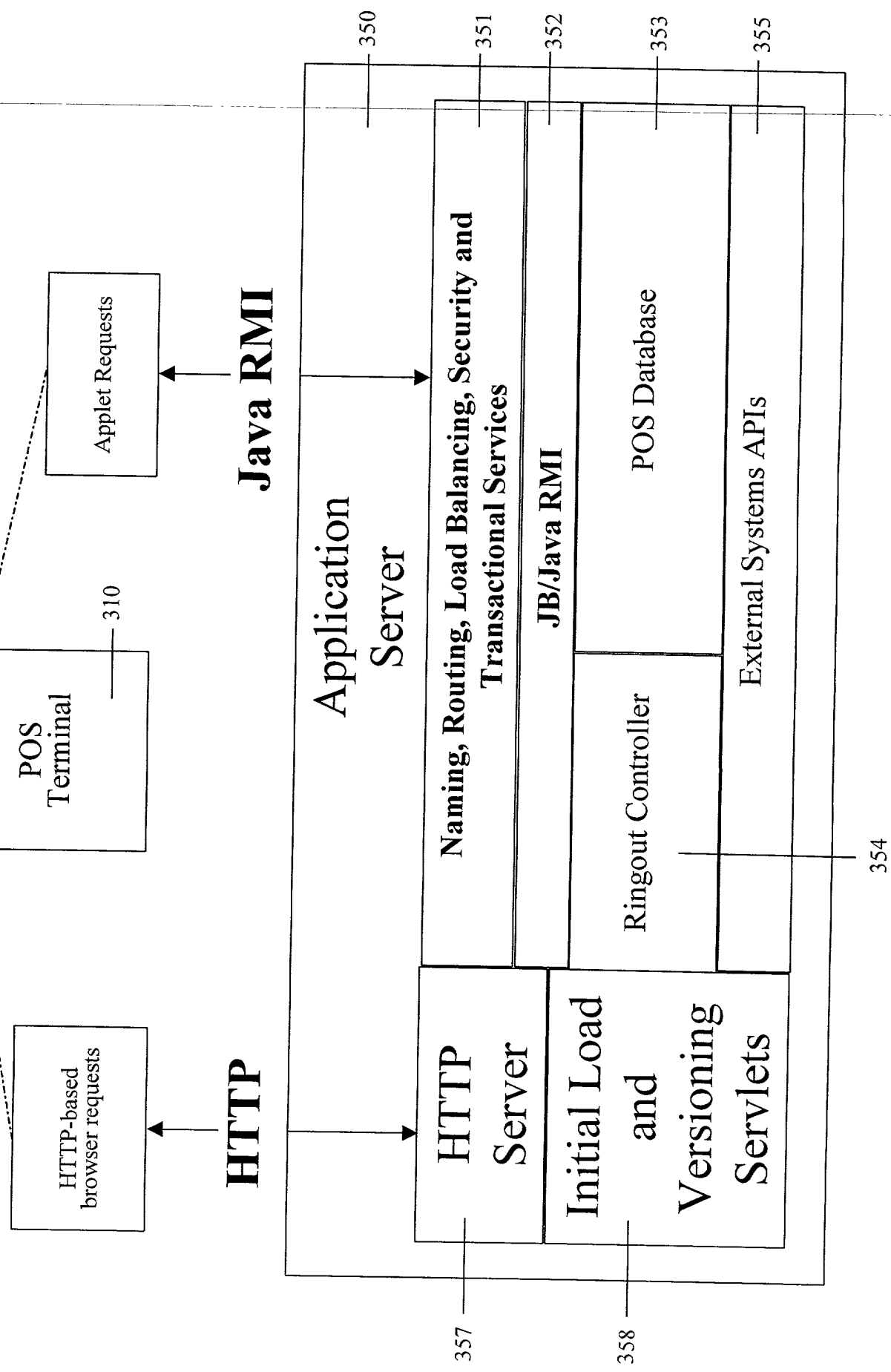
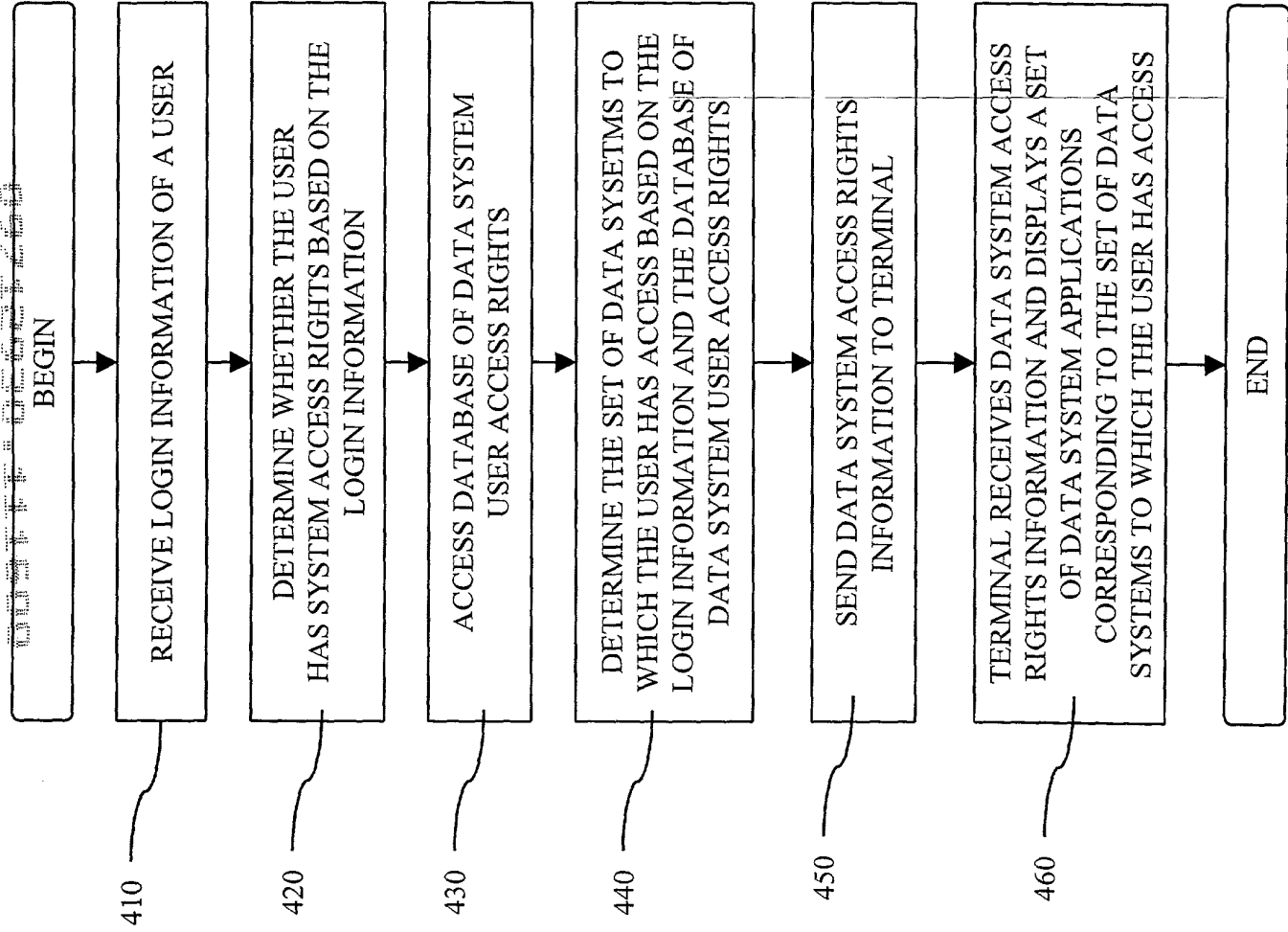


FIG. 3



BS00-118

FIG. 4



Docket No.
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Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled
SYSTEM AND METHOD FOR INTEGRATED PROCESSING OF INFORMATION FROM A PLURALITY OF DATA SYSTEMS

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____ and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Tenth inventor's signature	Date
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Citizenship	
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